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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,343	02/20/2002	John Boehnlein		9790

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EXAMINER	
FREAY, CHARLES GRANT	
ART UNIT	**PAPER NUMBER**
3746	3

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,343	BOEHNLEIN ET AL.	
	Examiner	Art Unit	
	Charles G Freay	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claim 13 is objected to because of the following informalities: there is no antecedent basis for "the injector combustor", the examiner believes the claim should be dependant upon claim 10. Appropriate correction is required.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 30-37 have been renumbered 28-35.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim set forth a "ducted rocket hot gaseous source". It is unclear what type of gas source this is and what structure makes up a ducted rocket hot gaseous source.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague and indefinite because in claims 1 and 20 the injector nozzles are said to be "offset radially at an angle away from and toward the engine longitudinal axis". As disclosed the nozzles are either offset towards or away from the longitudinal axis but not both towards and away from.

In claims 8 and 26 the nozzles are said to have a varying function opening relative the radial distance. It is unclear what this means. Is the shape of the nozzles as shown in Figs. 5 and 6 being claimed. In these figures the radial dimension of the opening varies with the length along the longitudinal axis. Or is the size of the openings being set forth in different rings or along the strut members being set forth? The applicant should clarify and add similar language to the specification.

In claim 13 it is unclear where or what flow streams are being referred to by "a subsonic and supersonic flow stream". Are these streams in the combustor, in the injector assembly, ramjet flow or in another location? Also, it is unclear what fuels are defined by "scramjet gaseous fuel".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20, 21, 26 and 27 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Boehnlein et al (USPN 5,946,904).

Boehnlein et al disclose an injector assembly for a ramjet having plural exhaust nozzles (39) defined in an injector assembly (18). The exhaust nozzles directing fluid in partially offset stream which alternate away from and towards the longitudinal axis. Fig. 7 clearly shows rings and strut support elements.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 9-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boehnlein et al in view of Bichler et al (USPN 5,116,251).

As discussed above Boehnlein et al disclose the invention substantially as claimed. Boehnlein et al further disclose external and internal gas supply systems (note column 4 lines 20-56) and an injector combustor (15) which uses the same fuels discussed in the instant application. Boehnlein et al discloses a variable exhaust nozzle formed by a plug (24). Boehnlein et al do not disclose a variable inlet system attached to the mixer. Boehnlein et al also discloses in column 1 lines 31-34 operation as set forth in claim 16. Bichler et al disclose a variable area inlet controlled by actuators. Note Figs. 4a-4e. At the time of the invention it would have been obvious to one of ordinary skill in the art to include a variable area inlet nozzle as disclosed in the ramjet of Bichler et al in order to accurately control the opening width of the intake as a function of flight speed to therefore prevent pumping or humming (note the end of column 1 in Bichler et al).

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boehnlein et al in view of Bichler et al as applied to claim 1 above, and further in view of Pearce et al (USPN 2,690,648).

As set forth in the above rejection Boehnlein et al in view of Bichler et al disclose the invention substantially as claimed. Boehnlein et al in view of Bichler et al does not disclose that the injector rings have slidable connections. Pearce et al disclose a combustor fuel pipe arrangement with slidable connections (43). At the time of the invention it would have been obvious to one of ordinary skill in the art to provide the ring elements of the fuel manifold assembly in Boehnlein et al with slidable connection, as taught by Pearce et al, in order to reduce thermal stresses and damage.

Claims 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boehnlein et al in view of Bichler et al as applied to claim 20 above, and further in view of Pearce et al (USPN 2,690,648).

As set forth in the above rejection Boehnlein et al discloses the invention substantially as claimed. Boehnlein et al does not disclose that the injector rings have slidable connections. Pearce et al disclose a combustor fuel pipe arrangement with slidable connections (43). At the time of the invention it would have been obvious to one of ordinary skill in the art to provide the ring elements of the fuel manifold assembly in Boehnlein et al with slidable connection, as taught by Pearce et al, in order to reduce thermal stresses and damage.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boehnlein et al in view of Bichler et al as applied to claim 1 above, and further in view of Kretschmer (USPN 5,351,480).

As discussed above Boehnlein et al in view of Bichler et al disclose the invention substantially as claimed. Boehnlein et al in view of Bichler et al do not disclose injecting

fluid into the nozzle divergent portion to control the separation point of the flow. Kretschmer disclose a hypersonic engine with a variable exhaust nozzle configuration (44) and gas injection (64) to control the location of separation (54). At the time of the invention it would have been obvious to one of ordinary skill in the art to use a system as taught by Kretschmer in the Boehnlein et al devise in order to have the correct expansion for the exhaust nozzle at a wide range of flight speeds.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boehnlein et al in view of Bichler et al as applied to claim 1 above, and further in view of Hausmann (USPN 3,143,856).

As discussed above Boehnlein et al in view of Bichler et al disclose the invention substantially as claimed. Boehnlein et al in view of Bichler et al do not disclose injecting fluid into the nozzle divergent portion during supersonic operation to control the thrust vector. Hausmann discloses a means for injecting fluid (20,24) in order to control the thrust vector during supersonic operation. At the time of the invention it would have been obvious to one of ordinary skill in the art to use a system as taught by Hausmann in the Boehnlein et al devise in order to obtain a simple thrust direction control mechanism.

Allowable Subject Matter

Claims 2, 4-6, 19, 22-24 and 28-35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sharifi et al and Moore et al disclose injector manifolds with offset nozzles, Karanian discloses a variable area inlet for a ramjet, Morris et al, Klees et al and Escher disclose ramjets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G Freay whose telephone number is (703)308-0639. The examiner can normally be reached on Monday through Friday 10:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe can be reached on (703)308-0102. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9302 for regular communications and (703)872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0861.

Charles G Freay
Primary Examiner
Art Unit 3746

CGF
July 23, 2003